Prenatal mental health and the effects of stress on the foetus and the child. Should psychiatrists look beyond mental disorders?

Howard and Khalifeh[1] provide a thorough overview of the range of diagnosable mental disorders that can occur in the perinatal period, together with their frequency and methods for treatment. They discuss this in the context of help both for the mother and to prevent possible adverse effects on the child.

However, psychiatrists and other professionals may be able to help even if the pregnant woman does not have a mental disorder. The evidence suggests that there can be an increased risk to the future child if the mother feels stressed, or has experienced early trauma. It is important to think and help beyond diagnosis.

Several different types of prenatal stress for the mother have been shown to increase the risk of emotional, behavioral and cognitive problems for the child, and to play a causal role. Such stress in the mother includes her worry about the outcome of her pregnancy, her exposure to a raised level of daily hassles, to a natural or man-made disaster, and to emotional cruelty or other forms of domestic abuse by her partner[2].

External stressors and the mothers' levels of anxiety and depression are often even higher in low and middle income countries. In these countries, there can be additional stress due to poverty, external situations such as war, higher levels of interpersonal violence, and reasons for worry about the pregnancy outcome because of high infant or maternal mortality[3].

If the mother is stressed during pregnancy, the child is at increased risk of symptoms of anxiety and depression, attention-deficit/hyperactivity disorder, conduct disorder, and of being on the autistic spectrum. There can be other problems, including asthma and preterm delivery. Very severe stress in the first trimester, such as the death of an older child or exposure to an earthquake, increases the risk of later schizophrenia[4]. With the other outcomes, there can be effects throughout pregnancy.

With all these effects of prenatal stress, the evidence shows that there is only an increase in *risk* to the future child. Most children are not affected, and in those who are the degree of the impact is variable. The individual genetic vulnerabilities of the child, and the nature of the postnatal care can also influence outcome.

Early childhood maltreatment of the mother has been found to be associated with altered brain structure in the newborn, with reduced cortical grey matter. This association was independent of the mother's prenatal mood, and of other potential confounding variables[5]. This suggests that such early trauma may affect the mother's biology in a way that in turn alters the development of the brain of her foetus, and may indicate vulnerability to later depression and other problems for the child.

The pathways by which these various types of stress affect the woman's biology and so alter foetal neurodevelopment are not fully known. But some pathways are being uncovered[6]. These particularly involve the hypothalamic-pituitary-adrenal (HPA) axis, and the immune system[7]. The HPA axis and other biological systems respond to a wide range of external stressors, and their response is not associated with specific diagnoses of mental illness.

There is evidence that maternal and foetal cortisol levels are correlated especially in more anxious or depressed mothers. If the mother is anxious or depressed, this can alter the function of the placenta in a way that allows more cortisol to pass through to the foetus. Raised maternal cortisol is associated with altered brain function in the child, including higher internalizing symptoms in girls via alterations in neonatal amygdala connectivity[8]. Possible mediating factors for the effects of early trauma are those associated with the immune system and inflammation.

If we can intervene to help reduce stresses for pregnant women, we may be able to prevent some child neurodevelopmental problems. Psychiatrists are trained to diagnose mental disorders, and diagnosis is certainly important for treatment selection and prognosis. But in some contexts it is important to think beyond terms of specific diagnoses, and stress in pregnancy is one of them.

There have been attempts to think in a new way about mental ill health. One is the development of the Research Domain Criteria. This suggests a new framework to provide empirically based theories about psychological mechanisms that may be targeted in interventions. This approach would be ideal if we had a biological test showing which pregnant women are likely to be affected in a way linked to harming the foetus and later child. We do not yet have such a test. We know too little about which biological changes in the mother mediate the effects on the foetus.

But we may still be able to help. During pregnancy almost all women have contact with health professionals, who have an important role in helping both the woman and her future child. Health systems in different countries vary. But psychiatrists can help set the agenda. A wide range of different types of stress need to be detected and addressed. This is an issue that women themselves find important. In a recent poll, women chose "stress in pregnancy" as the topic most requiring increased attention from researchers, above others such as nutrition or infant attachment, in relation to child development[9], although the authors of this study do warn about the risk of alarming pregnant women about mild to moderate stress.

Thus, it may be appropriate for health professionals caring for pregnant women to explore aspects of their mental well-being which may be a source of stress. How is the relationship with the partner? Did they suffer from early abuse or other adverse childhood experiences? Do they have specific anxiety about the outcome of their pregnancy? Have they been exposed to any other major stresses, such as fire or flood; or major problems with money or housing? These are not questions usually explored and may not lead to a specific diagnosis. But, in taking care of pregnant women and in preventing adverse outcomes for their child, we may need to think in new ways about mental health in pregnancy.

We also may need to offer other support

in addition to drugs and talking therapies. These may include help with the relationship with the partner. The father is often a major source of stress, but can also be a major support. This may involve assisting with practical problems such as housing, or facilitating the provision of a stronger or more supportive social network.

The role of psychiatrists and all those caring for the emotional well-being of women in the perinatal period, and for the future child, is much more than helping with diagnosed psychiatric disorders.

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Supporting psychological well-being around the time of birth: what can we learn from maternity care?

The early identification and management of perinatal mental problems for women without pre-existing mental disorders is largely dependent on health professionals within maternity care and primary care[1]. Despite being willing to offer mental health care, there is evidence that many of these health professionals often do not feel confident and feel ill equipped to identify and support women with mental health problems[2].

While training and clearer care pathways will undoubtedly contribute to improve professional confidence in managing perinatal mental disorders, there are some features of the maternity care context that should be considered when moving forward to optimize perinatal mental health care: a) the overarching focus on health rather than ill health; b) the need to differentiate between manifestations related to pregnancy or childbirth and mental health problems.

A brief look at the history of maternity care in the latter half of the 20th century provides some insights into its overarching focus on health. Hospital births in the UK grew from just over 60% in 1960 to 96% by 1990. Alongside this development there was a change in how women gave birth. Spontaneous childbirth was the norm during the 1960s, with an induction rate of just 8%. Induction rates grew to 39% by 1974[3]. The increasing trend in obstetric interventions was evident internationally and became the driver for change in the 1990s. In 1990, the World Health Organization released *Care in Normal Birth: A Practical Guide*. Changing Childbirth was launched in the UK in 1993 and the Mother Friendly Childbirth Initiative in North America was launched in 1996. Recurring principles in these initiatives were the empowerment of women and autonomy in childbirth process while doing no harm. These remain the corner stone of maternity care today.

These maternity care principles are among the dimensions of psychological well-being outlined by Fava and Guidi[4] in a previous Forum in this journal: environmental mastery, personal growth, purpose in life, autonomy, self-acceptance and positive relations with others. Psychological well-being, that promotes flourishing rather than simply the absence of illness, should find a natural home in maternity care and yet, until recently, it has been relatively understudied[5].

Howard and Khalifeh[1] highlight that women with common mental disorders have adverse pregnancy outcomes such as preterm birth, although the evidence is by no means consistent. Conversely, there is growing evidence that women with high positive affect have higher gestational age and reduced risk of preterm birth than those with low positive affect, even after controlling for the effects of birthweight and psychosocial stress[6]. As with common mental disorders, the evidence is not consistent, with some studies demonstrating effect sizes that are not clinically meaningful[7] or statistically significant[5].

Much more research is needed to understand psychological well-being around the time of birth and its impact on the maternity population as a whole. Incorporating psychological well-being into care would offer an innovative approach to screening, prevention, and the interventions that we offer women. Reframing perinatal mental health to include psychological well-being may also help address stigma associated with diagnosis and treatment of perinatal disorders, that is heightened in the perinatal period due to a sense of shame and guilt related to being perceived as a "bad" mother. Focusing on psychological well-being should in no way detract from the identification and treatment of women with mental disorders. The promotion of euthymia (a state of internal calm and contentment) within general psychiatry has much to offer perinatal mental health care[4].

The second, and related, issue is the need to differentiate between the manifestations of pregnancy or childbirth and mental health problems. Running parallel to changes in maternity care were developments in perinatal mental health research and practice. In the 1960s and 70s, postpartum blues became popularized as a mild disorder that impacted on most women in the days just after childbirth. Postnatal depression also came to the fore in research and practice. By the 1980s there were queries about the legitimacy of such diagnoses. A. Oakley, a British sociologist, noted in her book *Women Confined* that women's accounts of depression in her research